

**UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF MICHIGAN  
SOUTHERN DIVISION**

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AUTOMOTIVE TECHNOLOGIES  
INTERNATIONAL, INC.,

Plaintiff,

v.

Case No. 06-CV-15756-DT

SIEMENS VDO AUTOMOTIVE CORP.,  
TK ELECTRONICS, INC., TRW  
AUTOMOTIVE HOLDINGS CORP.,  
GENERAL MOTORS CORP. AND NISSAN  
NORTH AMERICA, INC.,

Defendants.

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**OPINION AND ORDER CONSTRUING CLAIMS AND  
SCHEDULING A STATUS CONFERENCE**

The matter is before the court for construction of five United States patents pursuant to *Markman v. Westview Instruments, Inc.*, 52 F.3d 967 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996). Plaintiff Automotive Technologies International, Inc. (“ATI”) has briefed its claims and the Defendants filed a consolidated response. The court conducted a claim construction hearing on August 13, 2008.

**I. INTRODUCTION<sup>1</sup>**

This litigation involves U.S. Patent Nos. 7,025,379 (“379 Patent”), 7,052,038 (“038 Patent”), 7,070,202 (“202 Patent”), 7,097,201 (“201 Patent”) and 6,850,824 (“824 Patent”), all of which are related to motor vehicle side-impact sensors that deploy

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<sup>1</sup> The facts set forth in the Introduction section provide only background and context. They do not supplement or supplant the court’s construction as set forth in the court’s Discussion of the claims.

occupant protection apparatus, such as airbags. ATI earlier litigated Patent No. 5,231,253 (“‘253 Patent”) before this court, and the court construed that patent to disclose both a mechanical accelerometer and an electronic-based side crash sensor. The court also concluded that certain defendants should be dismissed because of the locations in vehicles where sensors were mounted. *Automotive Technologies Int’l, Inc. v. BMW of North America, Inc.*, No. 01-71700, 2004 WL 5465964 (E.D. Mich. March 31, 2004)(Cleland, J.). The court later granted summary judgment to the remaining defendants because any claims concerning electronic sensors were invalid for lack of enablement. *Automotive Technologies Int’l, Inc. v. BMW of North America, Inc.*, 378 F.Supp.2d 780 (E.D. Mich. 2007). The Court of Appeals for the Federal Circuit affirmed, finding the ‘253 patent invalid for lack of enablement. *Automotive Technologies Int’l, Inc. v. BMW of North America, Inc.*, 501 F.3d 1274 (Fed. Cir. 2007).<sup>2</sup>

ATI contends that the patents involved in this litigation “generally come from two different ‘families’ of earlier ATI patents which followed the ‘253 Patent, and which add detail to the specification concerning use of an electronic side crash sensor in connection with occupant restraint apparatus.” (ATI’s Br. at 1.) Defendants dispute this view and contend that ATI is “attempt[ing] to justify the overly broad claim scope it now seeks.” (Defs.’ Br. at 1-2.) The court now turns to the claims presented for construction.

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<sup>2</sup>The Federal Circuit did not reach this court’s additional rationale of undue experimentation under the factors of *In re Wands*, 858 F.2d 731 (Fed. Cir. 1988).

## II. CLAIMS TO BE CONSTRUED

### A. U.S. PATENT NO. 7,025,379

#### 1. Claims 1 and 2

The parties have submitted the following phrases in Claims 1 and 2 of the '379 Patent for construction by the court (phrases for construction are underlined):

1. A side airbag system for a vehicle, consisting of:

an airbag arranged to deploy in the event of an impact into a side of the vehicle;

a single side impact crash sensor arranged to sense an impact into a side of the vehicle and cause deployment of said airbag based on the sensed impact, said crash sensor being an electrical sensor including a movable sensing mass which moves when the side of the vehicle is impacted and signal generating means for generating a time-varying signal representative of movement of said sensing mass, analyzing the signal representative of the movement of said sensing mass and generating a deployment signal based thereon; and . . .

an inflator for inflating said airbag, said inflator being coupled to said crash sensor and arranged to receive the deployment signal from said crash sensor and inflate said airbag only upon receipt of said deployment signal from said crash sensor.

2. The airbag system of claim 1, wherein said generating means comprise a micro-processor which processes signals representative of the movement of said sensing mass.

#### 2. Claims 9, 11 and 15

The parties have submitted the following phrases in Claim 9 of the '379 Patent for construction by the court (phrases at issue are underlined):

9. A vehicle having a front, a rear, left and right sides, at least one door arranged on each of the left and right sides, and inner and outer panels arranged along the left and right sides of the vehicle, comprising:

an airbag arranged to deploy along the left or right side of the vehicle in the event of an impact into the left or right side of the vehicle;

a side impact crash sensor arranged to sense an impact into the left or right side of the vehicle and for controlling said airbag in response to the sensed impact, said crash sensor being an electrical sensor including a sensing mass movable when the left or right side of the vehicle is impacted and signal generating means for generating a time-varying signal representative of movement of said sensing mass, analyzing the signal representative of the movement of said sensing mass and generating a deployment signal based thereon, said crash sensor being arranged in a door or between inner and outer panels along the left or right side of the vehicle to cause movement of said sensing mass upon an impact into the left or right side of the vehicle; and

an inflator for inflating said airbag, said inflator being coupled to said crash sensor and arranged to receive the deployment signal from said crash sensor and inflate said airbag upon receipt of said deployment signal.

11. The vehicle of claim 9, wherein said generating means comprise a micro-processor which processes signals representative of the movement of said sensing mass.

15. The vehicle of claim 9, wherein said generating means comprise a piezo-electric element.

### **3. Claim 20**

The parties have submitted the following phrases in Claim 20 of the '379 Patent for construction by the court (phrases at issue are underlined):

20. A method for protecting an occupant in a vehicle, comprising:

arranging an airbag in the vehicle in a position to protect the occupant in the event of an impact into a side of the vehicle;

arranging a crash sensor in a door or between inner and outer panels along a left or right side of the vehicle;

arranging a sensing mass in the crash sensor such that the sensing mass is movable upon an impact into the left or right side of the vehicle;

sensing an impact into a side of the vehicle by continuously monitoring the sensing mass to generate a time-varying signal representative of movement of the sensing mass and analyzing the signal representative of the movement of the sensing mass to generate a deployment signal based thereon; and

directing the deployment signal to an inflator to cause the inflator to inflate the airbag.

## **B. U.S. PATENT NO. 7,052,038**

### **1. Claim 1**

The parties have submitted the following phrases in Claim 1 of the '038 Patent for construction by the court (phrases at issue are underlined):

1. A vehicle having a longitudinal axis between a front and rear of the vehicle such that a lateral direction is defined perpendicular to the longitudinal axis and an outer skin along side of the vehicle, comprising:

a side impact crash sensor arranged inward from the outer skin and to react to lateral acceleration of the outer skin of the vehicle resulting from an impact of an object with the outer skin along a side of the vehicle;

means interposed between the outer skin along the side of the vehicle and said sensor for transferring the lateral acceleration to said sensor; and

an occupant restraint device connected to said sensor and arranged to deploy an occupant restraint based on the lateral acceleration;

said sensor including a housing defining an interior and a mass arranged in said interior of said housing relative to said housing in response to lateral acceleration of said sensor housing resulting from the transference of the lateral acceleration of the outer skin of the vehicle through said means to said sensor, movement of said mass being monitored such that the said sensor initiates deployment of said occupant restraint based on movement of said mass.

### **2. Claim 23**

The parties have submitted the following phrases in Claim 23 of the '038 Patent for construction by the court (phrases at issue are underlined):

23. A vehicle having a longitudinal axis between a front and rear of the vehicle such that a lateral direction is defined perpendicular to the longitudinal axis and an outer skin along side of the vehicle, comprising:

a side impact crash sensor arranged inward from the outer skin and to react to lateral acceleration of the outer skin of the vehicle resulting from an impact of an object with the outer skin along a side of the vehicle;

a transfer structure interposed between the outer skin along the side of the vehicle and said sensor suitable and arranged to transfer the lateral acceleration to said sensor; and

an occupant restraint device connected to said sensor and arranged to deploy an occupant restraint based on the lateral acceleration;

said sensor including a housing defining an interior and a mass arranged in said interior of said housing relative to said housing in response to lateral acceleration of said sensor housing resulting from the transference of the lateral acceleration of the outer skin of the vehicle through said means to said sensor, movement of said mass being monitored such that the said sensor initiates deployment of said occupant restraint based on movement of said mass.

### **C. U.S. PATENT NO. 7,070,202**

#### **1. Claim 1**

The parties have submitted the following phrase in Claim 1 of the '202 Patent for construction by the court (phrase at issue is underlined):

1. A vehicle, comprising:

a longitudinally extending outer skin arranged on a side of the vehicle;

a system housing arranged inward of said outer skin and having an opening facing a portion of a passenger compartment of the vehicle;

an inflatable airbag arranged in said system housing;

an inflator arranged in connection with the system housing; and

a sensor system for detecting an impact into a side of to [sic] vehicle and comprising a sensor housing and a mass arranged in said sensor housing and movable relative to said sensor housing in response to acceleration in excess of a predetermined threshold value, movement of said mass relative to said sensor housing providing an indication of a side impact for which deployment of said airbag is desired;

said inflator being actuated in response to a detected side impact by said sensor system in order to expel said airbag through said opening into the passenger compartment, and

wherein said sensor system is arranged such that whenever said sensor system detects a side impact in a direction perpendicular to said outer skin of the vehicle causing movement of said mass in excess of the predetermined threshold value, said inflator is actuated and said airbag is inflated and expelled through said opening into the passenger compartment.

## **2. Claim 28**

The parties have submitted the following phrases in Claim 28 of the '022 Patent for construction by the court (phrases at issue are underlined):

1. A vehicle, comprising:

a longitudinally extending outer skin arranged on a side of the vehicle;

a system housing arranged inward of said outer skin and having an opening facing a portion of a passenger compartment of the vehicle;

an inflatable airbag arranged in said system housing;

an inflator arranged in connection with the system housing; and

a sensor system for detecting an impact into a side of to [sic] vehicle and comprising a sensor housing and a mass arranged in said sensor housing and movable relative to said sensor housing in response to acceleration in excess of a predetermined threshold value, movement of said mass relative to said sensor housing providing an indication of a side impact for which deployment of said airbag is desired;

said inflator being actuated in response to a detected side impact by said sensor system in order to expel said airbag through said opening into the passenger compartment, and

wherein said inflator is actuated directly by said sensor system whenever said sensor system provides an indication of the side impact in a direction perpendicular to said outer skin of the vehicle for which deployment of said airbag is desired.

## **D. U.S. PATENT NO. 7,097,201**

### **1. Claim 1**

The parties have submitted the following phrases in Claim 1 of the '201 Patent for construction by the court (phrases at issue are underlined):

1. In a vehicle having doors, front and rear wheels and a longitudinal axis between a front and rear of the vehicle such that a lateral direction is defined perpendicular to the longitudinal axis, the vehicle also having left and right sides, comprising:

an occupant protection apparatus for protecting an occupant of the vehicle in the event of an impact into the left or right side of the vehicle;

a side impact, electronic crash sensor assembly for detecting impact into the left or right side of the vehicle and for controlling said occupant protection apparatus in response to the detected impact, said crash sensor assembly comprising:

a sensor housing arranged in a door or between inner and outer side panels along the left or right side of the vehicle;

a movable sensing mass arranged within and movable in the lateral direction relative to said sensor housing in response to lateral accelerations of said sensor housing;

a micro-processor containing an algorithm arranged to generate a time-varying signal representative of movement of said mass in lateral direction, analyze the signal representative of the movement of said mass and generate a deployment signal based thereon; and

control means for receiving the deployment signal from said micro-processor and controlling deployment of said occupant protection apparatus based thereon;

said sensing housing being arranged in such a position and a direction in the door or right side of the vehicle as to cause movement of said mass upon an impact into the left or right side of said vehicle resulting in lateral acceleration of said sensor housing.

## **2. Claim 7**

The parties have submitted the following phrase in Claim 7 of the '201 Patent for construction by the court (phrase at issue is underlined):

1. The vehicle of claim 1, wherein said occupant protection apparatus comprises:



an airbag housing defining an interior space;

at least one inflatable airbag in said interior space of said airbag housing such that when inflating, said at least one airbag is expelled from said airbag housing into the passenger compartment of the vehicle; and

an inflator arranged to inflate said at least one airbag,

said control means being arranged to control inflation of said at least one airbag via said inflator upon a determination of a crash into the side of the vehicle requiring inflation of said at least one airbag

## **E. U.S. PATENT NO. 6,850,824**

### **1. Claim 1**

The parties have submitted the following phrases in Claim 1 of the '824 Patent for construction by the court (phrase at issue is underlined):

1. In a motor vehicle, a control system for controlling an occupant restraint system, comprising:

a plurality of electronic sensors mounted at different locations on the vehicle, each of said sensors providing a measurement related to a state of said sensor or a measurement related to a state of the mounting location; and

a processor coupled to said sensors and arranged to diagnose the state of the vehicle based on the measurements of said sensors,

said processor being arranged to control the occupant restraint system based at least in part on the diagnosed state of the vehicle in an attempt to minimize injury to an occupant.

### **2. Claim 18**

The parties have submitted the following phrase in Claim 18 of the '824 Patent for construction by the court (phrase at issue is underlined):

18. A method for controlling an occupant restraint system in a vehicle comprising the steps of:

mounting a plurality of electronic sensors at different locations on the vehicle;

measuring a state of the sensor or a state of the respective mounting location of the sensor;

diagnosing the state of the vehicle based on the measurements of the state of the sensors or the state of the mounting locations of the sensors, and

controlling the occupant restraint system based at least in part on the diagnosed state of the vehicle in an attempt to minimize injury to an occupant in the event of a crash.

### **3. Claim 29**

The parties have submitted the following phrase in Claim 29 of the '824 Patent for construction by the court (phrase at issue is underlined):

18. A method for controlling an occupant restraint system in a vehicle comprising the steps of:

mounting a plurality of electronic sensors at different locations on the vehicle;

measuring a state of the sensor which is the acceleration, angular acceleration, angular velocity or angular orientation of the sensor;

diagnosing the state of the vehicle based on the measurements of the state of the sensors or the state of the mounting locations of the sensors, and

controlling the occupant restraint system based at least in part on the diagnosed state of the vehicle in an attempt to minimize injury to an occupant in the event of a crash.

### **III. STANDARD**

Under *Markman*, the court conducting a patent infringement analysis undertakes a two-step process. First, the court must determine the meaning and scope of the protected patents. This step, claim construction, is a question of law for the court. *Markman*, 52 F.3d at 976, 979. Once the court has interpreted the claims at issue, the second step requires comparing the properly construed claim and the accused device to

determine whether the accused device is infringing. *Id.* at 976. The infringement analysis, generally, is for a jury.

“The construction of claims is simply a way of elaborating the normally terse claim language in order to understand and explain, but not to change, the scope of the claims.” *Embrex, Inc., v. Serv. Eng’g Corp.*, 216 F.3d 1343, 1347 (Fed. Cir. 2000) (quotation omitted). In construing the claim, the court should keep in mind that “the language of the claim defines the scope of the protected invention.” *Bell Communications Research, Inc. v. Vitalink Communications, Corp.*, 55 F.3d 615, 619 (Fed. Cir. 1995). For this reason, “‘resort must be had in the first instance to the words of the claim,’ words [which are ascribed] their ordinary meaning unless it appears the inventor used them otherwise.” *Id.* at 620 (quoting *Envirotech Corp. v. Al George, Inc.*, 730 F.2d 753, 759 (Fed. Cir. 1984)). Further, “it is equally ‘fundamental that claims are to be construed in light of the specifications and both are to be read with a view to ascertaining the invention.’” *Id.* (quoting *United States v. Adams*, 383 U.S. 39, 49 (1966)).

In construing a claim, the court begins with an analysis of the ordinary meaning of the disputed claim terms. The terms used in the claims bear a heavy presumption that they mean what they say, having the ordinary meaning that would be attributed to those words by persons having ordinary skill in the relevant art. *Texas Digital Systems, Inc. v. Telegenix, Inc.* 308 F.3d 1193, 1202 (Fed. Cir. 2002). The court can then look to other intrinsic evidence, including the specification, and the prosecution history if in evidence. *Interactive Gift Express, Inc. v. Compuserve, Inc.*, 256 F.3d 1323, 1331 (Fed. Cir. 2001).

After exhausting the available intrinsic evidence, the court may also consider extrinsic evidence “to aid [it] in coming to a correct conclusion as to the true meaning of the language employed in the patent.” *Markman*, 52 F.3d at 980 (quotations omitted). Extrinsic evidence consists of all evidence external to the patent and prosecution history, including testimony of inventors or experts, dictionaries, and learned treatises. *Id.* “However, extrinsic evidence cannot be used to contradict the established meaning of the claim language.” *Gart v. Logitech*, 254 F.3d 1334, 1340 (Fed. Cir. 2001). In sum, “the ordinary and customary meaning of a claim term may be determined by reviewing a variety of sources.” *Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc.*, 334 F.3d 1294, 1298 (Fed. Cir. 2003). These sources “include the claims themselves, dictionaries and treatises, and the written description, the drawings, and the prosecution history.” *Id.* (internal citations omitted); *see also Inverness Med. Switzerland GmbH v. Warner Lambert Co.*, 309 F.3d 1373, 1378 (Fed. Cir. 2002) (noting that dictionaries are often helpful in ascertaining plain and ordinary meaning of claim language).

It is well established that 35 U.S.C. § 112 permits inventors to use generic means expression in claim limitations, provided that they clearly identify and describe the corresponding structures to perform the stated function in the patent specification. *Atmel v. Info. Storage Devices, Inc.*, 198 F.3d 1374, 1381 (Fed. Cir. 1999).

Paragraph 6 of 35 U.S.C. § 112 permits the use of means-plus-function language, stating:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

35 U.S.C. § 112, ¶ 6. The court interprets claims written in means-plus-function form to include only the “structure set forth in the specification and its equivalents.” *Kahn v. Gen. Motors Corp.*, 135 F.3d 1472, 1476 (Fed. Cir. 1998).<sup>3</sup>

In construing means-plus-function claim limitations, a court employs a two-step process. First, the court identifies the particular function claimed, often called the stated or claimed function. Second, it identifies the “corresponding structure, material, or acts described [by the claimant] in the specification.” *Budde v. Harley-Davidson, Inc.*, 250 F.3d 1369, 1376 (Fed. Cir. 2001); *see also Asyst Tech., Inc. v. Empak, Inc.*, 268 F.3d 1364, 1369-70 (Fed. Cir. 2001) (describing the two steps in construing a means-plus-function limitation). A party choosing to write a claim in the means-plus-function format, contrary to the ordinary situation, is limited to claiming the corresponding structure actually disclosed in the specification and its equivalents. *Kahn*, 135 F.3d at 1476.

Furthermore, “a structure disclosed in the specification is ‘corresponding’ structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim.” *B. Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1424 (Fed. Cir. 1997). “Whether or not the specification adequately sets forth structure corresponding to the claimed function necessitates consideration of that disclosure from the viewpoint of one skilled in the art.” *See, e.g., Budde*, 250 F.3d at 1376 (citing *In re Ghiron*, 442 F.2d 985, 991 (C.C.P.A. 1971) (noting that functional-type block diagrams may be acceptable corresponding structure if they serve in conjunction

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<sup>3</sup>The parties agree that some of the claims before the court are means-plus-function claims.

with the rest of the specification to enable a person skilled in the art to make a selection and practice the claim invention)).

Step-plus-function claims involve an analysis similar to means-plus-function claims in that certain phrases trigger a presumption that 13 U.S.C. § 112, ¶ 6 applies, but other aspects of the element, such as the recitation of a specific act, may overcome that presumption. *Seal-Flex, Inc. v. Athletic Track and Court Constr.*, 172 F.3d 836, 848 (Fed. Cir. 1999) (Rader, J., concurring). Use of the term “step for” in a method claim signals the patentee’s intent to invoke § 112, ¶ 6 and thus gives rise to the presumption that the “step for” limitations are in step-plus-function format. *Masco Corp. v. United States*, 303 F.3d 1316, 1326 (Fed. Cir. 2002). Without “step for” language, however, a method claim is subject to the strictures of § 112, ¶ 6 only if it recites steps for performing a specified function but does not recite any act in support of that function. See *O.I. Corp. v. Tekmar Co.*, 115 F.3d 1576, 1583 (Fed. Cir. 1997). Ultimately, § 112, ¶ 6 is implicated only when step-plus-function without acts are present. *Id.* In effect, § 112, ¶ 6 provides that an element in a method claim may be recited as a step for performing a specified function without the recital of acts in support of the function. *Id.*

## **IV. DISCUSSION**

### **A. The ‘379 Patent**

#### **1. Claims 1 and 2**

- a. “single side impact crash sensor”<sup>4</sup>

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<sup>4</sup>ATI’s proposed claim construction only refers to “single” while Defendants only refer to “single side impact crash sensor.” The court will construe “single side impact crash sensor,” which is the full clause of the relevant language of the ‘379 Patent.

The language above appears toward the beginning of claim 1, which describes a “side airbag system for a vehicle, consisting of: an airbag . . . a single side impact crash sensor arranged to sense an impact into a side of the vehicle and cause deployment of said airbag . . . and an inflator for inflating said airbag . . .” (Col. 17, lines 28-45.) ATI proposes construing “single” as “one for a side is sufficient.” (7/25/08 Joint Claim Construction Chart at 3 (“Chart”).) Defendants construe “single side impact crash sensor” as “one, and only one, side impact crash sensor.” (*Id.*)

“The phrase ‘consisting of’ is a term of art in patent law signifying restriction and exclusion, while, in contrast, the term ‘comprising’ indicates an open-ended construction. *Vehicular Techs. Corp. v. Titan Wheel Int’l*, 212 F.3d 1377, 1382-83 (citing *Parmelee Pharm. Co. v. Zink*, 285 F.2d 465, 469 (8th Cir. 1961)). According to the Federal Circuit, “the drafter uses the phrase ‘consisting of’ to mean ‘I claim what follows and nothing else.’” *Id.* at 1383. Claim 1 describes a “side airbag system” that consisted of “an airbag . . . a single side impact crash sensor . . . [and] an inflator for inflating said airbag.” The ordinary meaning of “single” is “[n]ot accompanied by another or other others; sole . . . [c]onsisting of one alone . . . [s]eparate from others; distinct.” *Amer. Heritage Dictionary*, Second College Ed. (1982); *see also Brook-Hill Wilk 1, LLC*, 334 F.3d at 1340.

ATI’s construction relies upon a concept of sufficiency that does not limit the number of sensors per side airbag system. Defendants’ proposal, meanwhile, calls for one, and only one, sensor, per airbag system. Read in context, claim 1 describes unitary systems, each consisting of an airbag, sensor and inflator (and nothing more). The patent thus calls for only one sensor for each airbag system. Figure 16 calls for

two separate sensor locations: one near the front passenger and the other near the rear passenger of the vehicle. This figure depicts two systems per *side*, but within each system there is a single *sensor* assigned only to that airbag. The court will therefore construe “single side impact crash sensor” as “one, and only one, side impact sensor.”

- b. *“signal generating means for generating a time-varying signal representative of movement of said sensing mass, analyzing the signal representative of the movement of said sensing mass and generating a deployment signal based thereon”*

The parties agree that a means-plus-function analysis should apply to this claim. But they disagree about the relevant function(s) and the scope of the means described to perform the function(s). ATI appears to argue that the function of “signal generating means” is limited to representing the motion of the moving mass because a comma separates that use from “analyzing the signal” and “generating a deployment signal.” (ATI’s Br. at 9-10.) Therefore, ATI contends, “these phrases . . . are not a part of or necessary to the interpretation of ‘signal generating means.’” (*Id.* at 10.) Defendants counter that the claim lists three functions that must be construed together without broadening the claim by omitting two of its three functions. (Defs.’ Br. at 10-11.)

Defendants have the better argument. The plain language lists three distinct yet related functions: (1) generating a time-varying signal representative of movement sensed by the sensor’s mass, (2) analyzing that signal and (3) generating a deployment signal. The court will therefore construe “signal generating means” to include the three functions plainly listed in the claim.<sup>5</sup> Basic grammar compels linking the three elements

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<sup>5</sup>The Federal Circuit indulges a “‘heavy presumption’ that a claim term carries its ordinary and customary meaning.” *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002) (citing *Johnson Worldwide Assocs., Inc. v. Zebco Corp.*, 175 F.3d 985, 989 (Fed. Cir. 1999)).



of a list separated by a comma and a conjunction - not, as ATI asserts, treating them as distinct islands. In addition, means-plus-function analysis does not necessarily imply that the means is connected to a single function. Various functions are often at play, as both common sense and relevant case law teach. See e.g. *Mass. Inst. of Tech., et al. v. Abacus Software*, 462 F.3d 1344, 1355 (Fed. Cir. 2006); *Cardiac Pacemakers, Inc. v. St. Jude Med., Inc.* 296 F.3d 1106, 1114 (Fed. Cir. 2002) (holding that “the function identified by the claim language is dual”).

With respect to the corresponding structure, ATI proposes that such structure includes:

an electronic sensor, that may but need not include a micro-processor which processes signals representative of movement of the sensing mass, and may but need not include an algorithm that determines a value for movement in excess of a threshold value; a strain gage [sic]; a piezo-electric element; or a micromachined acceleration sensing mass; and substantial equivalents of the foregoing.

(Chart at 2 (citations omitted).) The Listed Structures, as the court will refer to the them, are (1) micro-processor, (2) algorithm, (3) threshold value, (4) strain gauge, (5) piezo-electric element and (6) micro-machined acceleration sensing mass.<sup>6</sup> Defendants propose the following:

The corresponding structure is a portion of the sensor including a micro-processor which processes signals representative of the movement of the sensing mass and records movement of the mass over time and which includes an algorithm to determine whether the movement of the sensing mass results in a calculated value which is in excess of the threshold value in order to generate a deployment signal . . . . That portion of the sensor may include a piezo-electric element or a strain gauge for generating a signal representative of the movement of the mass . . . .

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<sup>6</sup>The court realizes that algorithms and threshold values are technically not structures. For ease of reference, however, the court will include them in its discussion of Listed Structures.

(*Id.* (citations omitted).)

The Listed Structures are integral to the court's construction, and the court views the list as exhaustive, not demonstrative. See *Embrex*, 216 F.3d at 1347 (holding that claim construction should not change the scope of the claims). Relevant portions of the patent specification support this view:

The signal generating mechanism may comprise a micro-processor which processes signals representative of movement of the sensing mass, analyzing the signal representative of the movement of the sensing mass and generating a deployment signal based thereon. The inflator is coupled to the crash sensor and receives the deployment signal therefrom and inflates the airbag upon receipt of the deployment signal. The signal generating mechanism may comprise a micro-processor which processes signals representative of the continuous movement of the sensing mass. The movement of the sensing mass may be recorded over time while the micro-processor includes an algorithm arranged to determine whether the movement of the sensing mass results in a calculated value which is in excess of a threshold value in order to generate the deployment signal. (Col. 4, lines 57-67.)

A micro-processor processes the signal representative of the movement of the sensing mass and optionally includes an algorithm arranged to determine whether the motion over time of the sensing mass results in a calculated value which is in excess of a threshold value in order to generate the deployment signal. (Co. 5, lines 22-26)

The sensor may be an electronic sensor arranged to generate a signal representative of the movement of the mass and optionally comprise a micro-processor and an algorithm for determining whether the movement over time of the mass as processed by the algorithm results in a calculated value which is in excess of the threshold value based on the signal. In the alternative, the mass may constitute part of an accelerometer, i.e., a micro-machined acceleration sensing mass. The accelerometer could include a piezo-electric element for generating a signal representative of the movement of the mass. (Col. 15, lines 51-62.)

(See *also* col. 13, lines 15-40, col. 16, line 49 - col. 17, line 6.) The inventors' explanation of their patent relied exclusively upon the Listed Structures. While the language refers to optional items, alternatives and what "may" work, there is nothing to

indicate what other possibilities might exist. As such, a proper means-function analysis must articulate the Listed Structures and limit the claim to its express terms. See *Texas Digital Sys.*, 308 F.3d at 1202. Otherwise, the Listed Structures would only serve an exemplary purpose and the court's construction would be overly broad. *Id.*

Accordingly, the court will construe "signal generating means . . ." as the following:

**Functions:**

signal generating means for (1) generating a time-varying signal representative of movement of said sensing mass, (2) analyzing the signal representative of the movement of said sensing mass and (3) generating a deployment signal based thereon.

**Corresponding Structure:**

A portion of the sensor includes a micro-processor that processes signals representative of the movement of the sensing mass, records movement of the mass over time and employs an algorithm to determine whether said signals and time result in a calculated value that exceeds a threshold value required to generate a deployment signal to the inflator. The sensor may include a piezo-electric element or a strain gauge for generating a signal representative of the movement of the sensing mass.

For subsequent claims that reproduce relevant language construed above (particularly, "signal generating means"), the court's construction of those claims shall correspond to the above construction.<sup>7</sup> The Federal Circuit has instructed that "[u]nless otherwise compelled, when different claims of a patent use the same language, we give that language the same effect in each claim." *Innova/Pure Water, Inc. v. Safari Water*

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<sup>7</sup>Indeed, the parties' claim construction chart relies heavily upon "see above" as the parties refer back, and even across patents, to this key "signal generating means" language, as well as other language in the claim construction chart. The court sees no reason to deviate from a consistent construction of this language across all of the patents. Likewise, where the parties rely upon earlier constructions, across claims or patents, the court will adhere to consistent constructions. While in some cases like language in different patents might result in differing constructions, in this case the parties agree that the language should be construed similarly.

*Filtration Systems, Inc.*, 381 F.3d 1111, 1119 (Fed. Cir. 2004); see also *Fonar Corp. v. Johnson & Johnson*, 821 F.2d 627, 632 (Fed. Cir. 1987), overruled on other grounds by *Cardinal Chemical Co. v. Morton Intern., Inc.*, 508 U.S. 83 (1993); see generally *Digital Biometrics, Inc. v. Identix, Inc.* 149 F.3d 1335, 1345 (Fed. Cir. 1998) (“[W]hatever interpretation we assign should encompass both uses because the same word appearing in the same claim should be interpreted consistently.”).

## **2. Claims 9, 11 and 15**

### **a. “left or right side of the vehicle”**

ATI contends that no construction is necessary whereas Defendants argue for “the left or right side of the perimeter structure of the vehicle and not the top or bottom of the vehicle.” The side location is relevant for purposes of the location of both the impact and the sensors as they are described in the patent.

The court previously construed very similar language in the ‘253 Patent litigation. See *ATI*, 2004 WL 5465964 at \*13-14. The court imports nothing resembling a *res judicata* effect to its earlier construction of a different patent, but must observe that its previous analysis was based on the (very) ordinary meaning of “side of the vehicle.” As the court reasoned before:

[ATI’s] construction stretches the ordinary meaning of the phrase. If the housing could be mounted on the roof, bottom, or center of the vehicle, then it is not mounted on the *side* of the vehicle. If “side of the vehicle” were interpreted as Plaintiff suggests, then the word “side” would be superfluous. Plaintiff’s construction would be correct if it had simply stated “a position between the centers of the front and rear wheels.” The phrase “side of vehicle” modifies the position between the centers of the front and rear wheels. Plaintiff’s construction would have the court read “side” out of the claim limitation. The court declines to do so.

. . . .

Thus, the court will not construe “side of the vehicle” to include one entire half of the vehicle. “Side of the vehicle” means the side perimeter structure of the vehicle and not the top or bottom of a vehicle.

*Id.* at \*14. The same phrase “side of the vehicle” appears in the ‘379 Patent, preceded by the modifying phrase “left or right.” The same ordinary meaning should therefore attach to the phrase being modified. Further, the patent specifications use the phrase in its ordinary sense, depict locations along the perimeter of the vehicle and make no reference to top or bottom impacts or sensor locations. (Fig. 16.) Accordingly, the court concludes that “left or right side of the vehicle” should be construed as “left or right side perimeter structure of the vehicle and not the top or bottom of the vehicle.”

b. *“arranged in a door or between inner and outer panels”*

ATI proposes construing the above phrase as “in a door between the inner and outer panels of the vehicle’s body.” Defendants present a similar construction but include a limitation – “in a door between the inner and outer side panels; and not mounted on a rigid portion of the frame of the vehicle body.” Defendants’ proposed limitation is based upon ATI’s patent prosecution history that allegedly disclaimed mounting sensors to a rigid portion of the vehicle body. (Defs.’ Br. at 16-17; *see also* 7/14/05 Am. to ‘379 Patent at 14, Defs.’ Ex. 8.) ATI’s reply brief, however, presents a different characterization of the nature of patent prosecution on which Defendants rely.

The intrinsic evidence plainly states that the preferred mounting locations for sensors are “the side of a coupe vehicle, one inside of the door for the driver and the other between the inner and outer side panels for the rear seat passenger.” (Col. 6, lines 26-30; fig. 16.) Elsewhere, the specification describes other possible implementations which may not be self-contained modules and which may include

remote sensors located away from the vehicle door, e.g., in the vehicle seat. (Col. 12, lines 55-66.) The specifications here appear to the court as having merely commented on other ways to configure a sensor and not, as ATI seems to argue, to have presented an alternative means of constructing the design of the '379 Patent. Further, ATI presents nothing within the intrinsic evidence that mentions a rigid portion of the frame of the vehicle as an appropriate mounting location. The intrinsic evidence does not provide for mounting on such a rigid portion of the vehicle.

The patent prosecution history, meanwhile, affirmatively addressed the arrangement of a side impact sensor in an earlier patent, Iyoda, #5,390,951 ('951). The inventor of '379 argued that the rigid mounting location provided for, in part, in the '951 Patent "excludes a mounting position in a side door" as called for in the '379 Patent "since the side door is not a rigid portion of the frame of the body." (7/14/05 Am. to '379 Patent at 14, Defs.' Ex. 8.) The '379 Patent is understandably silent about rigid frame mounting, as it would have made no sense for the inventor to have argued that the '379 Patent did not read on the '951 Patent that expressly provided for the possibility of such mounting.

The court is persuaded that "arranged in a door or between inner and outer panels" should be construed as "arranged only in a door or between the inner and outer side panels and in either case not on a rigid area of the frame of the vehicle body."

c. *"being coupled to"*

The above language appears in claim 9, which refers to an inflator "being coupled" to a crash sensor "and arranged to receive the deployment signal from said crash sensor and inflate said airbag upon receipt of said deployment signal." ATI

argues that “being coupled to” should be construed as “in a circuit with” because “the specification makes clear that the various components that make up the occupant restraint system are joined together electrically,” “common parlance . . . “refer[s] to things being electrically coupled” and that such a relationship “does not necessitate that [the components] be physically stuck together (i.e. touching or contiguous).” (ATI’s Br. at 11.) Defendants argue that “being coupled to” means “joined, fastened or linked together; connected to.” (Defs.’ Br. at 13.) Defendants argue that the intrinsic evidence fails to support non-contiguous electronic connection, as the claim language, specification and all the relevant patent drawings “show a crash sensor housing joined or fastened to the inflator assembly.” (*Id.* at 13-14 (citing items 1310, 1312 and figs. 1-2, 8-14.)

The ordinary meaning of “being coupled” is, depending on usage and context, broad enough to include electronic or physical connection, or both. The verb couple is defined as “[t]o link together; connect; [t]o link (two circuits or currents) as by magnetic induction; [t]o form pairs; join.” Amer. Heritage Dictionary, Second College Ed. (1982); *see also Brook-Hill Wilk 1, LLC*, 334 F.3d at 1340 (construing court may consult dictionary). Having reviewed the intrinsic evidence relied upon by Defendants, the court concludes that, for purposes of the ‘379 Patent, “being coupled to” entails either an electronic or a physical connection, or both. The figures depict both forms of coupling between the crash sensor and inflator. The court therefore construes “being coupled to” as “joined or linked together physically, electronically or both.”

### **3. Claim 20**

- a. “*arranging an airbag*” and “*arranging a sensing mass*”

The parties' claim construction chart identifies the above language but fails to present proposed constructions from either side. The briefs also appear to not dispute the above language, as the court can locate no argument for competing constructions. The court will therefore not construe this language. The same is true in Claim 20 for "arranging a sensing mass" and the court will also refrain from construing this phrase.

b. *"arranging a crash sensor in a door or between inner and outer panels"*

For the reasons stated above, the court will construe the above language to include the limitation the court has articulated concerning mounting on the rigid portion of the vehicle.

## **B. The '038 Patent**

### **1. Claim 1**

a. *"means interposed between the outer skin along the side of the vehicle and said sensor transferring the lateral acceleration to said sensor"*

ATI agrees with Defendants that the language is a means-plus-format and that the function is "transferring the lateral acceleration to said sensor." (ATI's Br. at 12.) The dispute lies in the corresponding structure, which Defendants contend is limited to a plate mounted on the main structural beam in the door. (Defs.' Br. at 17 (citing Fig. 12; col. 4, lines 47-59).) ATI argues for a construction that includes such a plate, as well as "a sufficiently strong member connecting the sensor the vehicle side, and extension of the sensor, which can be a structural member of the vehicle and substantial equivalents of the foregoing." (Chart at 7 (citing col. 4, lines 47-48, 53; col. 14, lines 15-16.))

The court has reviewed the relevant intrinsic evidence and it finds greater support for Defendants' proposed construction. The only corresponding structure that is disclosed with any specificity is a plate mounted on the main structural beam of the



door. (Col. 4, lines 47-59; Fig. 12.) The specification language upon which ATI relies is tentative and it fails to reference any figures or otherwise articulate a structure that would correspond to the same function. The court will therefore construe “means interposed . . .” as “means interposed between the outer skin along the side of the vehicle and said sensor for transferring the lateral acceleration to said sensor through a plate mounted on a main structural beam in the door.”

b. *“connected to”*

The above language and the parties’ competing proposed constructions mirror “coupled to” as the court construed it in the ‘379 Patent. The ordinary meaning of the phrase can, again, encompass electrical or physical connection, or both. The intrinsic evidence suggests all three. (See Figs. 1-2, 8-14.) Accordingly, the court will construe “connected to” as “joined or linked together physically, electronically or both.”

## **2. Claim 23**

a. *“transfer structure interposed between the outer skin along the side of the vehicle and said sensor suitable and arranged to transfer the lateral acceleration to said sensor”*

This language is parallel to that of Claim 1, except that “transfer structure” takes the place of “means.” ATI disputes Defendants’ contention that means-plus-function analysis should apply. Defendants’ argument is more persuasive, as the parallel language of Claim 23 does not express a sufficiently definite structure in the functional language of “transfer structure . . . arranged to transfer the lateral acceleration to said sensor.” Claim 23 thus expresses the same meaning as Claim 1, or at least a substantially similar meaning. The court will therefore construe it as aimed at the function of transferring the lateral acceleration to the sensor and relying upon the same

corresponding structure that applies to Claim 1: a plate mounted on the main structural beam in the door. The court's construction is "transfer structure interposed between the outer skin along the side of the vehicle and said sensor for transferring the lateral acceleration to said sensor through a plate mounted on the main structural beam in the door."

### **C. The '202 Patent**

#### **1. Claims 1 and 28**

a. *"arranged in connection"*

ATI proposes "operative with relation to" whereas Defendants call for "located and joined, fastened or linked together." The claim language appears in the context of describing "an inflator arranged in connection with the system housing." ATI argues that the '202 Patent does not require the inflator and system housing comprise a single component or be located otherwise in any particular configuration. While there is no express limitation, the figures and specifications depict without fail either a physical proximity or an electrical connection between the inflator and system housing, or both. (Figs. 1-2, 8-14.) The court will therefore construe "arranged in connection to" as "joined or linked together physically, electronically or both."

b. *"actuated directly by"*

An adverb separates the proposals of ATI and Defendants, respectively: "triggered" v. "triggered directly by." The court finds no basis to omit the adverb that, it cannot be disputed, plainly appears in the language. Otherwise, the court's construction would be overbroad in that it would allow for an indirect causal relationship,

a clear contradiction of the word “directly.” The court will therefore construe “actuated directly by” as “triggered directly by.”

#### **D. The ‘201 Patent**

##### **1. Claim 1**

a. *“electronic crash sensor assembly”*

ATI argues for no construction, or, in the alternative, for referring to the above language as “device.” Defendants counter with “a unit of parts assembled together including the sensor housing, movable sensing mass, micro-processor and control means.” The word assembly has a plain meaning that implies a question - assembly of what? For purposes of the ‘201 Patent, the answer is a limited set of components that, when put together, make up an electronic crash sensor. A “device,” without more, says nothing about the invention. Rather, the intrinsic evidence identifies four indispensable sub-parts: (1) sensor housing, (2) movable sensing mass, (3) micro-processor and (4) control means.<sup>8</sup> The court will construe “electronic crash sensor assembly” as “a device comprised of a sensor housing, movable sensing mass, micro-processor and control means.”

b. *“control means for receiving the deployment signal from said micro-processor and controlling deployment of said occupant protection apparatus based thereon”*

The parties agree that means-plus-function analysis should apply and that the relevant function is “receiving the deployment signal from said micro-processor and controlling deployment of said occupant protection apparatus based thereon.” They

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<sup>8</sup>Importantly, Claim 1 of the related ‘201 patent expressly lists these four components in its description of a crash sensor assembly. (‘201 Patent, Col. 19, lines 34-52; Defs.’ Ex. 3.)

disagree about the corresponding structure. Defendants maintain that the claim fails to identify a supporting structure related to the function. ATI contends that the corresponding structure includes “wiring or other circuit to the occupant protection apparatus and a power supply for actuating the occupant protection apparatus and substantial equivalents of the foregoing.” (Chart at 12.) The court now turns to the question of whether the intrinsic evidence supports connecting “wiring or other circuit” and “a power supply” to the function of “receiving a deployment signal and deploying an occupant protection apparatus.”

A structure disclosed in the specification is deemed to be a “corresponding structure” only if the specification clearly links or associates that structure to the function recited in the claim. *B. Braun Med., Inc. v. Abbott Lab.*, 124 F.3d 1419, 1424 (Fed. Cir. 1997); *see also Budde.*, 250 F.3d at 1376 (noting that as a “quid pro quo” for the convenience of using § 112 ¶ 6, the patentee accepts a duty to clearly link or associate the corresponding structure to the stated function). Indeed, “[b]ecause the claims of a patent are afforded a statutory presumption of validity, overcoming the presumption of validity requires that any facts supporting a holding of invalidity must be proved by clear and convincing evidence.” *Budde*, 250 F.3d at 1376-1377 (citing *Ultra-Tex Surfaces, Inc. v. Hill Bros. Chem. Co.*, 204 F.3d 1360, 1367 (Fed. Cir. 2000))

The court finds that the ‘201 Patent fails to adequately connect the corresponding structures of wiring, other circuit and power supply to the relevant function. None of the intrinsic evidence cited by ATI is clearly linked to or otherwise fairly describes a “control means” for receiving the deployment signal from the micro-processor and controlling deployment of the occupant protection apparatus. (See Fig. 15; Col. 14, line 54 - Col.

16, line 5.) There is no description of the wiring or any other structure controlling the airbag. There is also no specific link between the related functions and a crash sensor or electronic circuit, as ATI appears to argue. (ATI's Br. at 15.) The public and, importantly, anyone who is skilled in the art would be left guessing what corresponding structure is the control means for the recited function. *See Default Proof Credit Card Sys., Inc. v. Home Depot*, 412 F.3d 1291, 1299-1300 (Fed. Cir. 2005). Defendants present the more potent argument, and the court will therefore conclude that claim 1 contains no corresponding structure for the recited function.

## **E. The '824 Patent**

### **1. Claims 1, 18 and 29**

#### **a. “diagnose/diagnosing the state of the vehicle”**

ATI construes the above language as simply “diagnose the condition of the vehicle.” Defendants proposed a construction that relates the condition of the vehicle “with respect to its stability and proper running and operating condition.” (Chart at 13.)

Defendant elaborates with the following:

Thus, the state of the vehicle could be normal when the vehicle is operating properly on a highway or abnormal when, for example, the vehicle is experiencing excessive angular inclination (e.g., two wheels are off the ground and the vehicle is about to rollover [sic]), the vehicle is experiencing a crash, the vehicle is skidding, and other similar situations. A diagnosis of the state of the vehicle could also be an indication that one of the parts of the vehicle, e.g., a component, system or subsystem, is operating abnormally.

(*Id.*) Defendants' construction quotes the definition that appears within the '824 Patent.

(Col. 10, lines 14-26, Defs.' Ex. 5.) The court agrees that this definition should in substance govern the meaning of the claim language. *See Irdeto Access, Inc. v.*

*Echostar Satellite Corp.*, 383 F.3d 1295, 1300 (Fed. Cir. 2004) (“It is well-established that the patentee can act as his own lexicographer . . .”).

The pitfalls of ATI’s terse yet wide-open construction are obvious. The condition of a vehicle refers to an infinite set of circumstances, the vast majority of which side impact sensors are not designed to detect or handle. For instance, the invention has nothing to do with whether a car is dusty, red, rusted, submerged in water, burning, being broken into, etc. Rather, the definition in the ‘824 references specific hazards grounded in the stability and proper operation of the vehicle - impacts, angular orientation, skidding, component failure and the like. The court will therefore construe “diagnose the state of the vehicle” consistent with the definition:

diagnose the stability and proper running and operating condition of the vehicle. The diagnosis includes normal driving operating, as well as abnormal operation including excessive angular inclination (such as two wheels being off the ground as the vehicle is about to roll over), a crash, skidding and other similar situations. The diagnosis could also be an indication that one of the parts, components, systems or subsystems of the vehicle is operating abnormally.

## **V. CLAIM CONSTRUCTION**

In light of discussion and analysis set forth above, the disputed portions of the relevant claims of U.S. Patent Nos. 7,025,379 (“‘379 Patent”), 7,052,038 (“‘038 Patent”), 7,070,202 (“‘202 Patent”), 7,097,201 (“‘201 Patent”) and 6,850,824 (“‘824 Patent”) are construed as follows:

### **‘379 PATENT CLAIM CONSTRUCTION CHART**

#### **Claims 1 and 2**

<b><u>Claim Phrase</u></b>	<b><u>Court’s Construction</u></b>
“single side impact crash sensor”	“one, and only one, side impact sensor”

<u><b>Claim Phrase</b></u>	<u><b>Court's Construction</b></u>
"signal generating means for generating a time-varying signal representative of movement of said sensing mass, analyzing the signal representative of the movement of said sensing mass and generating a deployment signal based thereon"	<p><b>Functions:</b>  "signal generating means for (1) generating a time-varying signal representative of movement of said sensing mass, (2) analyzing the signal representative of the movement of said sensing mass and (3) generating a deployment signal based thereon."</p> <p><b>Corresponding Structure:</b>  "A portion of the sensor includes a micro-processor that processes signals representative of the movement of the sensing mass, records movement of the mass over time and employs an algorithm to determine whether said signals and time result in a calculated value that exceeds a threshold value required to generate a deployment signal to the inflator. The sensor may include a piezo-electric element or a strain gauge for generating a signal representative of the movement of the sensing mass."</p>

### **Claims 9, 11 and 15**

<u><b>Claim Phrase</b></u>	<u><b>Court's Construction</b></u>
"left or right side of the vehicle"	"left or right side perimeter structure of the vehicle and not the top or bottom of the vehicle"
"signal generating means . . ."	See '379 Patent, Claim 1.
"arranged in a door or between inner and outer panels"	"arranged only in a door or between the inner and outer side panels and in either case not on a rigid area of the frame of the vehicle body"
"being coupled to"	"joined or linked together physically, electronically or both"
"generating means"	See '379 Patent, Claim 1.

**Claim 20**

<b><u>Claim Phrase</u></b>	<b><u>Court's Construction</u></b>
"arranging a crash sensor in a door or between inner and outer panels"	See '379 Patent, Claims 9, 11 and 15.
"left or right side of the vehicle"	See '379 Patent, Claims 9, 11 and 15.
"a time-varying signal"	See '379 Patent, Claim 1.
"analyzing the signal representative of the movement of the sensing mass"	See '379 Patent, Claim 1.

**'038 PATENT CLAIM CONSTRUCTION CHART**

**Claim 1**

<b><u>Claim Phrase</u></b>	<b><u>Court's Construction</u></b>
"means interposed between the outer skin along the side of the vehicle and said sensor transferring the lateral acceleration to said sensor"	"means interposed between the outer skin along the side of the vehicle and said sensor for transferring the lateral acceleration to said sensor through a plate mounted on the main structural beam in the door"
"connected to"	"joined or linked together physically, electronically or both"

**Claim 23**

<b><u>Claim Phrase</u></b>	<b><u>Court's Construction</u></b>
"transfer structure interposed between the outer skin along the side of the vehicle and said sensor suitable and arranged to transfer the lateral acceleration to said sensor"	"transfer structure interposed between the outer skin along the side of the vehicle and said sensor for transferring the lateral acceleration to said sensor through a plate mounted on the main structural beam in the door"
"connected to"	See '038 Patent, Claim 1.

**'202 PATENT CLAIM CONSTRUCTION CHART**



**Claim 1**

<b><u>Claim Phrase</u></b>	<b><u>Court's Construction</u></b>
"arranged in connection"	"joined or linked together physically, electronically or both"

**Claim 28**

<b><u>Claim Phrase</u></b>	<b><u>Court's Construction</u></b>
"arranged in connection"	See Patent '202, Claim 1.
"actuated directly by"	"triggered directly by"

**'201 PATENT CLAIM CONSTRUCTION CHART**

**Claim 1**

<b><u>Claim Phrase</u></b>	<b><u>Court's Construction</u></b>
"left or right side of the vehicle"	See '379 Patent, Claims 9, 11 and 15.
"electronic crash sensor assembly"	"a device comprised of a sensor housing, movable sensing mass, micro-processor and control means"
"arranged in a door or between inner and outer side panels"	See '379 Patent, Claims 9, 11 and 15.
"analyze the signal representative of the movement of said mass"	See '379 Patent, Claim 1.
"control means for receiving the deployment signal from said micro-processor and controlling deployment of said occupant protection apparatus based thereon"	The function is "receiving the deployment signal from said micro-processor and controlling deployment of said occupant protection apparatus based thereon."  There is no corresponding structure.

**Claim 7**

<u>Claim Phrase</u>	<u>Court's Construction</u>
"control means"	See '201 Patent, Claim 1.

### '824 PATENT CLAIM CONSTRUCTION CHART

#### Claim 1

<u>Claim Phrase</u>	<u>Court's Construction</u>
"coupled to"	See '379 Patent, Claims 9, 11 and 15.
"diagnose the state of the vehicle"	"diagnose the stability and proper running and operating condition of the vehicle. The diagnosis includes normal driving operating, as well as abnormal operation including excessive angular inclination (such as two wheels being off the ground as the vehicle is about to roll over), a crash, skidding and other similar situations. The diagnosis could also be an indication that one of the parts, components, systems or subsystems of the vehicle is operating abnormally"

#### Claim 18

<u>Claim Phrase</u>	<u>Court's Construction</u>
"diagnosing the state of the vehicle"	See '824 Patent, Claim 1.

#### Claim 29

<u>Claim Phrase</u>	<u>Court's Construction</u>
"diagnosing the state of the vehicle"	See '824 Patent, Claim 1.

## **VI. CONCLUSION**

For the reasons set forth above, IT IS ORDERED that the claims of U.S. Patent No. 7,025,379, U.S. Patent No. 7,052,038, U.S. Patent No. 7,070,202, U.S. Patent No. 7,097,201 and U.S. Patent No. 6,850,824 are CONSTRUED as set forth in the body of this order.

IT IS FURTHER ORDERED that the court will conduct a status conference in chambers on **December 18, 2008 at 9:00 a.m.**

S/Robert H. Cleland  
ROBERT H. CLELAND  
UNITED STATES DISTRICT JUDGE

Dated: November 25, 2008

I hereby certify that a copy of the foregoing document was mailed to counsel of record on this date, November 25, 2008, by electronic and/or ordinary mail.

S/Lisa Wagner  
Case Manager and Deputy Clerk  
(313) 234-5522